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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010	))))	WT Docket No. 96-86

To: The Commission

COMMENTS OF THE PROJECT 25 STEERING COMMITTEE IN RESPONSE TO FOURTH NOTICE OF PROPOSED RULEMAKING

The Project 25 Steering Committee ("Committee") hereby submits the following comments in response to the Commission's *Fourth Notice of Proposed Rulemaking,* FCC 00-271, released August 2, 2000, *("Fourth NPRM")* in the above-captioned proceeding. The *Fourth NPRM* seeks comments regarding the Public Safety National Coordination Committee (NCC) "Recommendations to Federal Communications Commission for Technical and Operational Standards for Use of the 764-776 MHz and 794-806 MHz Public Safety Pending Development of Final Rules", dated February 25, 2000 ("NCC Report").

Project 25 was formed in 1989 for the express purpose of developing standards for public safety radio communications using digital modulation techniques. The Steering Committee is composed of members from major public safety communication associations and certain Federal government agencies. Three members representing the Association of Public-Safety Communications Officials-International, Inc. (APCO), three representing the National Association of State Telecommunications Directors (NASTD).

There are three members from the Federal government public safety type departments, one each representing Public Safety Wireless Network (PSWN), National Communications Systems (NCS) and National Security Agencies (NSA). In addition there are two co-chairs selected by APCO and NASTD.

Project 25 functions in cooperation with the Telecommunications Industry Association (TIA). The entire project is driven through expressed user needs, and a user Statement of Requirements is the keystone of every element of the process. As standards are developed, through extensive meetings and electronic exchange of information, they are approved by the Steering Committee, balloted by TIA and then passed to the American National Standards Institute (ANSI) to be balloted in that process so they can become a recognized national standard. It should be noted that an inherent part of the process are the Memorandum of Understanding that ensures that Intellectual Property Rights essential to the process will be offered at fair and reasonable terms.

Phase I of this project is complete. It consists of over 3200 pages of standards documents encompassing the Common Air Interface, the vocoder, encryption etc. It is designed to function in a 12.5 kHz bandwidth in either a conventional or trunked mode of operation. The channel bit rate is 9600 kbs, determined well in advance of a similar definition of spectrum efficiency by the Commission. While it is a purely digital standard, for maximum usability and to facilitate a graceful migration path, equipment is required to be backward compatible to the analog mode. Phase II, now well underway, requires equipment to function in a 6.25 kHz channel width, with the requirement for backward compatibility to Phase I, for the reasons above stated.

It should be noted that several members of the Steering Committee and numerous regular participants in the Project 25 process, are active in the NCC meeting process, and have made significant contributions in this forum as well.

These comments will relate specifically to those questions posed in the NPRM that are directly related to Project 25.

1. The appropriate digital voice standard for the interoperability channels.

The Committee is very encouraged that the Commission's has "tentatively" accepted Project 25 Phase I as the voice standard for the interoperability channels. It is important that the Commission understands that the Committee is sensitive to the fact that this will require a 12.5 kHz wide channel, even though the Commission's stated goal is to have public safety users migrate to 6.25 kHz channels. Project 25 shares the same ultimate goal. However, the Committee's enthusiasm is tempered by the reality of how difficult and costly it will be to achieve and implement, and the time that will be required for the technology to be developed, when the immediate need is so great.

As evidence of the Committee's support for the long-term migration to narrower channels, as above stated, Phase II (6.25 kHz technology) is presently well underway. The Committee and the users are committed to achieving the stated objective as rapidly as the various standards process and availability of suitable technology will permit. The three proposed standard options presently under consideration are as follows:

1. 6.25 kHz FDMA
2. 2 slot TDMA operating in 12.5 kHz channels
3. 4 slot TDMA operating in 25 kHz channels

The Committee strongly supports the Commissions "tentative" decision to designate the Project 25 Phase I as the interoperability standard for this new public safety spectrum. This complements the Project 25 User Needs document that requires Phase I to be backward compatible to 25 kHz analog channels and forward compatible with Phase II 6.25 kHz standards. To ensure total interoperability both within the existing spectrum and this new spectrum, Project 25 has encouraged TIA to include similar interoperability requirements in any new public safety standards proposed to meet the expressed User Needs. Hence establishing the interoperability channels in the proposed fashion ensures that radios operating in this band will be interoperable with the large, and rapidly increasing number of imbedded Project 25 systems presently operational in adjacent spectrum. It is recognized that this is dependent upon subscriber units being capable of operating across multiple bands. Several manufacturers have indicated is feasible. Also it will greatly facilitate interfacing infrastructure, as channel width, vocoders and other parameters will be identical.

No other proposal has been made to the NCC that offers a comparable level of interoperability.

2. Propose to retain the present 4.8 kilobytes per second (kbs) per 6.25 kHz standard rather than require one voice channel per 6.25 kHz.

The Committee strongly supports this proposal as it is consistent with the current Phase I and ensures that either voice or data may be transmitted on a specific channel.

3. **Invite comment on the appropriate data interoperability standard for the interoperability channels.**

The Committee strongly recommends the adoption of Project 25 Phase I for the data interoperability on the 12.5 kHz channels. To iterate, it is the only actual suite of standards that has been proposed to date. In fact, data transport capabilities are an integral part of the User Needs Statement of Requirements and the present standards were created for this very purpose. This integrated approach will not compromise the proposed enhancements for data-only channels. Of even greater importance is the fact that Project 25 standards have been designed from their inception to allow maximum flexibility in the future. This will ensure that developing technologies can be enhanced to accommodate new attributes, while at the same time retaining the vital interoperability feature. As stated, it will allow any selected channel within a system to be used for either voice, data, or both, as may be required.

4. **Tentatively decline to require subscriber units designated for voice-only application to have data transmission capability.**

As pointed out above, the selection of Project 25 for both voice and data standards for interoperability precludes the need for the Commission to require specific voice and data designations, except for the wide band channels presently designed for data.

5. **Solicit comment on the establishment of a single standard for encrypted communications, Specifically, the current Federal government standard.**

Project 25, in cooperation with TIA and numerous Federal agencies, adopted a progressive process whereby it can take advantage of existing and proposed Federal encryption standards. Many of the standards that are already in place have been

incorporated in the Project Phase I current standards and have been approved by both TIA and ANSI. (ANSI/TIA/EIA 102.AAAA-A). Further, TIA, Project 25 and all appropriate Federal agencies are continuing efforts to ensure Project 25 compatibility with the newest encryption standards that are now under consideration at the Federal level. The Committee recommends the referenced encryption standards be adopted to ensure interoperability and a continuous migration path on those systems used by both Federal and local governmental agencies.

6. Migration to 6.25 kHz channels issue

This issue is raised in various parts of the Docket. The Project 25 Steering Committee in general supports the desire of the Commission to attempt to obtain maximum benefit from the spectrum by forcing public safety users to smaller and smaller channels. This is evident in the process of Project 25 that has developed standards for the 12.5 kHz channels with appropriate migration paths. The Committee, however, is convinced the first priority, in view of the immediate need for spectrum and the current state of the art, must be to authorize the use of 12.5 kHz channels in this 700 MHz frequency band. This recommendation is made in spite of the limitations presently imposed by existing television stations in that are required to relocate.

To compensate for the unknown factors related to this relocation and those of changing out existing public safety systems, the Committee supports a multi-tiered implementation of 6.25 kHz type acceptance program. In common with other public safety groups we agree that the lynchpin of any migration to 6.25 kHz must be based on the time when the spectrum in the 50 major metropolitan areas becomes available for public safety users. The Committee supports the concept of establishing critical

milestones (dates) that would automatically activate certain regulatory actions. We strongly believe that this proposal and the proposals submitted by APCO, IACP and other public safety user groups will provide the Commission with the foundation to move forward with a Report and Order that is based on a high degree of consensus among all the public safety users. By establishing these critical milestones for regulatory changes, the manufacturers will be given realistic time-lines for product development and should result in a reasonable economic penalty to the users. It should also provide the Commission further incentive to clear the spectrum of existing television systems in the major metropolitan areas.

The general framework of this migration plan that the Committee and others are proposing, calls for the migration clock to start with limited requirements for 6.25 kHz type acceptance as of December 31, 2006. Or alternatively within 6 months following the issuance of a public notice by the Commission that at least 15 of the top metropolitan areas (including at least 7 of the top ten metropolitan areas) have been cleared of all relevant television stations. In this regard, the Committee agrees with the other public safety user groups that the Commission's new 50 metropolitan areas type acceptance implementation date must based on this stated criteria with the stipulation that they will use whichever of the two stated dates occurs last. The Committee concurs with the other public safety user groups and organizations that any new 6.25 kHz type acceptance mandate for this band must be predicated on the assumptions that: 1) the radio manufacturers are able to produce a product at an economical price that meets or exceeds today's performance standards and: 2) the new type acceptance rules must include the requirement that the new products will be capable of full interoperability with Project 25

Phase I Common-Air- Interface. This also assumes that the Commission may have other options by the time the critical date occurs and all of these options may be considered again in a Notice of Proposed Rule Making or other forum.

The Committee proposes further that use of the general use channels must be at 6.25 kHz channel spacing by 10 years after the type acceptance date established by the Commission for the top 20 metropolitan areas. This proposal is based on the belief that this will allow a reasonable equipment life cycle for large users that purchase equipment and install systems between now and the previously proposed type acceptance dates for 6.25 kHz equipment. It is also predicated on the assumption that the Commission would continue, to the degree practical, to use the Project 25 Phase I standard as the interoperability standard for both the 12.5 kHz channels and the new 6.25 kHz channels. In addition to the above, the Committee proposes that all general use operations outside of the top 50 metropolitan areas be given 15 years before the Commission requires them to start using the 6.25 kHz equipment. It is further assumed that the Commission would allow users in the rural areas to continue to use the 12.5 kHz channels indefinitely on a secondary basis, or as otherwise determined by a future rule making proceeding.

In working with the users the Committee continues to harbor reservations that the above proposed equipment life cycle may be too short for many small users. However, the Committee recognizes and supports the need to work for a positive resolution of the regulatory issues associated with this new 700 MHz band.

Although the Commission has repeatedly stated that economic considerations would not be a factor in this rule making, the reality is that mandated requirements do have very significant economic and budgetary impacts on all governmental agencies. This is

particularly true in rural and depressed areas, where the need for good public safety communications is often the highest.

In essence this proposed action plan establishes, as stated in preceding portions of these comments, that the emphasis must be on "graceful migration", not merely on any perceived concept of spectrum efficiency based on channel widths alone. For example, as data operation is moved to narrower channel widths, spectrum efficiency may actually decrease. Efficiency must be measured in "throughput" or data speed, not on the amount of spectrum used. This is not a linear projection. In many instances as channel width is increased by two or four times, it is possible to increase throughput by perhaps three or six times. This phenomenon is due to the fact that an entire channel cannot be used effectively to the very band edge, due to the need to protect adjacent channel users. Combining single channels into a larger composite channel results in fewer individual band edges with resultant greater capacity for a given amount of spectrum. While it is true that the state of the art is continually improving, there is a practical limit, and decreasing channel width will always result in a disproportionate reduction in data throughput. In data transmission specifically, the trend is toward wider channels with resultant greater speeds. Many public safety applications now require these higher speeds for effective use. There is some doubt that a 6.25 kHz data channel will ever provide speeds great enough for wide spread use and effectiveness for public safety applications.

The thrust must be to work in a calculated fashion to reach the stated goal of 6.25 kHz channels without sacrificing the effective and practical use of the spectrum. Industry must be encouraged to proceed with efforts to move to narrower channels, consistent with

clear guidelines and dates certain to ensure that both they and users can realize the necessary time for transition and affordable life cycles for existing equipment.

Conclusion

The Committee respectfully urges the Commission to move rapidly to adopt a firm decision to make Project 25, Phase I the interoperability standard and to proceed with the other issues in the manner recommended. The need for this new spectrum is urgent. Recognizing that there are still many areas dependent upon television migration to clear spectrum, there are presently many areas that could use this spectrum at once if rules for use are established. Manufacturers are reluctant to proceed without a firm set of parameters, and timely action by the Commission will be of great value to expedite the development of the necessary equipment. Likewise, public safety agencies must have a firm base for planning new systems and for obtaining funds for procurement and installation. There is currently a significant waiting list of agencies unable to upgrade or build new systems due to lack of spectrum. Access to this new band has fallen behind the Congressional directives, and the Committee urges the Commission to proceed as rapidly as possible in the manner stated in these comments.

Respectfully submitted,

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